Volunteer Lake Assessment Program Individual Lake Reports

AYERS POND, BARRINGTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,987	**Max. Depth (m):**	9.1	**Flushing Rate (yr^{1})**	1
Surface Area (Ac.):	228	**Mean Depth (m):**	4.4	**P Retention Coef:**	0.69
Shore Length (m):	7,400	**Volume (m^{3}):**	4,030,500	**Elevation (ft):**	233

TROPHIC CLASSIFICATION

Year	Trophic class
1979	OLIGOTROPHIC
1995	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

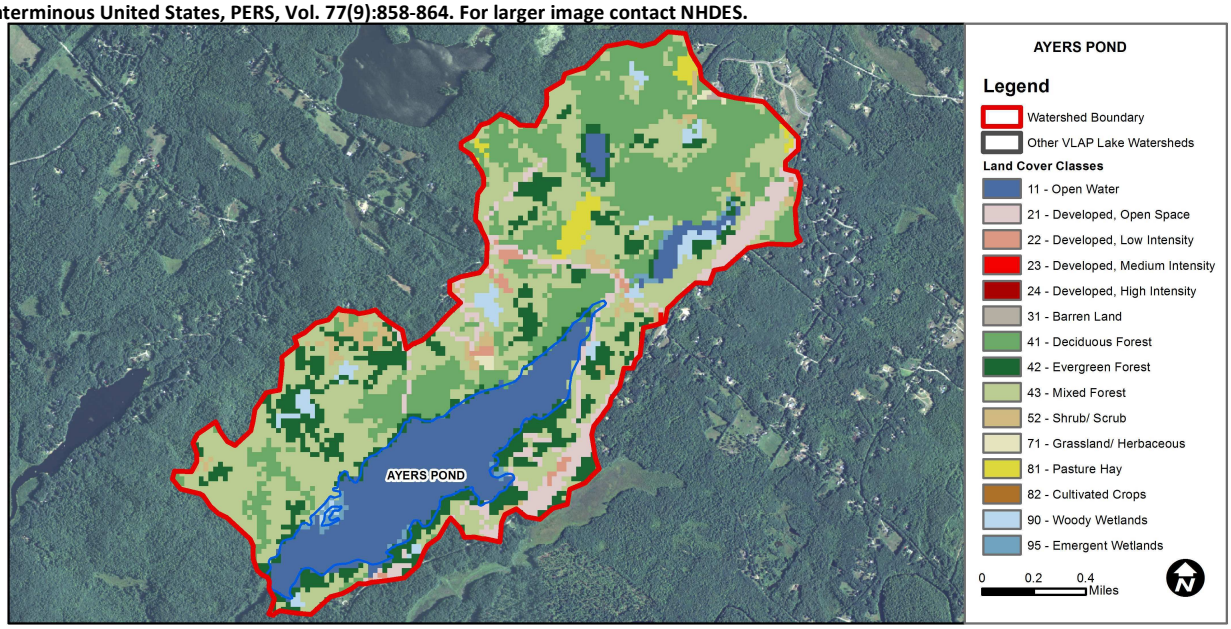
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Encouraging	There are no geometric means or there are > 2 single samples but those samples are within 75% of the geometric means criteria. More data needed.
	Chlorophyll-a	Good	There are at least 10 samples with one, but < 10% of samples, exceeding indicator.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

AYERS POND - CAMP FIRESIDE BEACH	Escherichia coli	Good	There are geometric means and all geometric means are < geometric mean criteria; and there has been a single sample exceedance.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	16.6	Barren Land	0.06	Grassland/Herbaceous	0.24
Developed-Open Space	6.28	Deciduous Forest	24.86	Pasture Hay	1.49
Developed-Low Intensity	0.78	Evergreen Forest	12.82	Cultivated Crops	0
Developed-Medium Intensity	0.03	Mixed Forest	31.53	Woody Wetlands	2.19
Developed-High Intensity	0	Shrub-Scrub	2.26	Emergent Wetlands	0.84

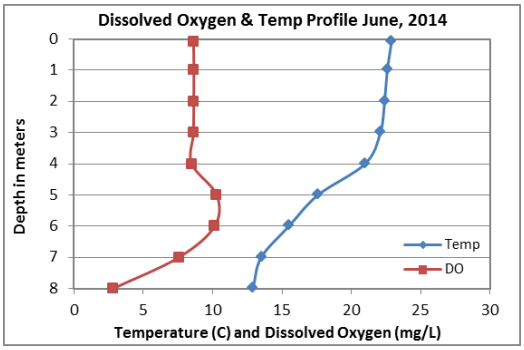
Volunteer Lake Assessment Program Individual Lake Reports

Ayers Pond, Barrington

2014 Data Summary

Observations and Recommendations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels remained stable from June to July and increased slightly in August. Chlorophyll levels were low and less than the state median in 2014. Historical trend analysis indicates relatively stable chlorophyll levels with moderate variability between years.
- **Conductivity/Chloride:** Deep spot, Inlet and Outlet conductivity and chloride levels remained slightly elevated and greater than the state medians. Historical trend analysis indicates significantly increasing (worsening) epilimnetic (upper water layer) conductivity levels since monitoring began. Winter de-icing activities on roadways, parking lots, driveways, and walkways have likely caused the increasing and elevated levels.
- **Total Phosphorus:** Deep spot phosphorus levels remained low from June through August and much less than the state median. Historical trend analysis indicates relatively stable epilimnetic phosphorus level with moderate variability between years. Inlet phosphorus levels were stable and within a low to average range. Outlet phosphorus levels were slightly elevated in June during low flow conditions and then decreased to low levels in July and August.
- **Transparency:** Transparency was very good in June, and then decreased in July and August. Average transparency was much better than the state median and historical trend analysis indicates stable transparency since monitoring began.
- **Turbidity:** Epilimnetic and Outlet turbidities were slightly elevated in June during low water levels, however the turbidities decreased in July and August. Metalimnetic (middle water layer), hypolimnetic (lower water layer) and Inlet turbidities were within average ranges from those stations.
- **pH:** Epilimnetic pH was within the desirable range 6.5-8.0 units in June however decreased to less than desirable in July and August. Metalimnetic and Hypolimnetic pH were less than desirable. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability since monitoring began.
- **Recommended Actions:** Since 2007, deep spot chlorophyll, phosphorus and transparency have improved slightly and have become more stable. We hope to see this continue. Conductivity levels in the pond have significantly increased since monitoring began. Encourage local road agents and winter maintenance companies to obtain a Voluntary NH Salt Applicator license through the UNH Technology Transfer Center's Green SnowPro Certification program. Keep up the great work!



Station Name	Table 1. 2014 Average Water Quality Data for AYERS POND								
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	2.9	2.18	20	89.9	6	5.21	5.42	1.22	6.49
Metalimnion				91.1	7			0.75	6.38
Hypolimnion				89.1	9			1.17	6.19
Inlet			30	124.2	15			0.66	6.14
Outlet				89.2	10			1.03	6.43

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Worsening	Data significantly increasing.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.